What is claimed is:

1. A controller for controlling an expansion valve of a refrigeration system for cooling a medium, the refrigeration system having a refrigerant circulation and comprising at least one compressor, a condenser, an evaporator for evaporating a refrigerant and being arranged in series with the expansion valve, the expansion valve being electronically controllable by means of a control signal, the controller being configured to include, in the generation of the control signal, an output of a summing junction for summation or subtraction of a first and a second signal, said first signal being derived from at least a measure of the evaporation temperature (T0) of the refrigerant in the evaporator and a measure of a property of the medium.

2. A controller according to claim 1, further comprising a first and a second control element, the first control element being configured to generate a contribution to an input for said summing junction, and wherein the second control element is configured to receive, as an input, the output of said summuning junction.

3. A controller according to claim 2, further comprising:
- a further summing junction for subtracting the superheat temperature of the refrigerant (SH) from a reference superheat temperature, the superheat temperature (SH) being derived as the difference between the temperature (S2) of the refrigerant at a refrigerant outlet of the evaporator and said evaporation temperature (T0), S2-T0; the first control element being configured to receive, as an input, the difference between the reference superheat temperature and the superheat temperature or a signal derived from said difference, and to generate, as an output, said second signal.

4. A controller according to claim 2, comprising an inner and an outer control loop, wherein the first control element is configured to generate a reference to the inner loop, and wherein the inner loop generates the control signal to the expansion valve based on said first signal and the reference generated by the outer loop.

5. A controller according to claim 2, wherein at least one of the first and second control element is constituted by one of the following elements:

- a P-element;
- an I-element;
- a D-element;
- a PI-element;
- a PID-element;
- a PD-element; and
- a fuzzy logic element.

6. A controller according to claim 1, and configured to include, in the derivation of said first signal, at least one of:

i) the temperature (S3) of the medium at a medium inlet of the evaporator;

ii) a measure of the mass flow of the medium ($\dot{m}$); and

iii) the temperature (S4) of the medium at a medium outlet of the evaporator.

7. A controller according to claim 6, configured to derive the first signal by means of at least one of the following functions:

I) $\dot{m}\cdot(S3-S4)/\ln\{(S3-T0)/(S4-T0)\}$;

II) $(S3-S4)/\ln\{(S3-T0)/(S4-T0)\}$;

III) S3-T0;

IV) S4-T0.

8. A controller according to claim 1, comprising a first D-element for generating said first signal.

9. A controller according to claim 3, comprising a second D-element for determining a derivative of the superheat signal (SH).

10. A refrigeration system comprising a controller according to claim 1.

11. A method for controlling an expansion valve of a refrigeration system for cooling a medium, the refrigeration system having a refrigerant circulation and comprising at least one compressor, a condenser, an evaporator for evaporating a refrigerant and being arranged in series with the expansion valve, the expansion valve being electronically controllable by means of a control signal, the method comprising including, in the generation of the control signal, an output of a summing junction for summation or subtraction of a first and a second signal, said first signal being derived from at least a measure of the evaporation temperature (T0) of the refrigerant in the evaporator and a measure of a property of the medium.